

CLAIMS

What is claimed is:

1. A microwave oven, comprising:
a control unit having an internal storage unit to store cooking data and/or operational data required to perform one or more existing cooking modes; and
an external storage unit arranged independently from the control unit and electrically connected to the control unit to communicate with the control unit, the external storage unit storing cooking data and/or operational data required to perform one or more new cooking modes.
2. The microwave oven according to claim 1, further comprising:
a magnetron to generate microwaves to heat food,
wherein said cooking data comprises:
cooking times and output values of the magnetron according to a type and an amount of the food.
3. The microwave oven according to claim 1, further comprising:
a display unit to display cooking information required to cook food and/or cooking status information generated when the food is cooked,
wherein the operational data comprise:
the cooking information and/or the cooking status information.
4. The microwave oven according to claim 1, wherein the external storage unit has a data storage configuration, the data storage configuration comprising:
a first storage field to store application status information of the external storage unit;
a second storage field to store the cooking data of the one or more existing cooking modes;
a third storage field to store the cooking data of the one or more new cooking modes;
and

a fourth storage field to store operational data of the one or more new cooking modes.

5. The microwave oven according to claim 1, wherein said external storage unit comprises:

a non-volatile memory device supporting rewriting of data.

6. The microwave oven according to claim 1, wherein said external storage unit comprises:

an Electrically Erasable Programmable Read Only Memory (EEPROM).

7. A method of controlling a microwave oven, the microwave oven having a control unit having an internal storage unit to store cooking data and/or operational data required to perform one or more existing cooking modes, and an external storage unit arranged independently from the control unit and electrically connected to the control unit to communicate with the control unit, the external storage unit storing cooking data and/or operational data required to perform one or more new cooking modes, comprising:

performing a first cooking mode by reading the cooking data and/or the operational data of the first cooking mode from the external storage unit when the first cooking mode is set, reading of data from the external storage unit is possible, and the first cooking mode is one of the new cooking modes;

performing a second cooking mode by reading the operational data of the second cooking mode from the internal storage unit and reading the cooking data thereof from the external storage unit when the second cooking mode is set, reading of the data from the external storage unit is possible, and the second cooking mode is one of the existing cooking modes; and

performing a third cooking mode by reading the cooking data and/or the operational data of the third cooking mode from the internal storage unit when the third cooking mode is set, reading of the data from the external storage unit is impossible, and the third cooking mode is one of the existing cooking modes.

8. The microwave oven control method according to claim 7, further comprising:

determining whether the external storage unit, which is electrically connected to the control unit exists, when a supply of power to the microwave oven is started;

determining that the reading of data from the external storage unit is possible when the external storage unit, which is electrically connected to the control unit exists, and required data are stored in the external storage unit;

determining that the reading of data from the external storage unit is impossible when the external storage unit, which is electrically connected to the control unit exists, and required data are not stored in the external storage unit; and

determining that the reading of data from the external storage unit is impossible when the external storage unit, which is electrically connected to the control unit does not exist.

9. The microwave oven control method according to claim 8, further comprising:
setting a logic value of an external storage unit flag to a first logic level when the reading of the data from the external storage unit determined to be is possible; and
setting the logic value of the external storage unit flag to a second logic level when the reading of the data from the external storage unit is determined to be impossible.

10. The microwave oven control method according to claim 9, wherein the logic value of the external storage unit flag is used as an index to determine whether the reading of the data from the external storage unit is possible whenever each of the cooking modes is set.

11. A microwave oven, comprising:
a control unit having an internal storage unit to store cooking data and/or operational data required to perform one or more existing cooking modes; and
an external storage unit arranged independently from the control unit and electrically connected to the control unit to communicate with the control unit, the external storage unit storing cooking data and/or operational data required to perform one or more new cooking modes,

wherein the external storage unit has a data storage configuration, the data storage configuration comprising,

a first storage field to store application state information of the external storage

unit,

a second storage field to store the cooking data of the one or more existing cooking modes,

a third storage field to store the cooking data of the one or more new cooking modes, and

a fourth storage field to store the operational data of the one or more new cooking modes.

12. A microwave oven, comprising:

a control unit having a storage unit therein to store data associated with one or more existing cooking modes; and

an external storage unit, separate from the control unit, communicating with the control unit, the external storage unit storing at least operational data associated with one or more new cooking modes.

13. A microwave oven, comprising:

a control unit;

an internal storage unit communicating with the control unit and storing data required for one or more existing cooking modes; and

an external storage unit, separate from the internal storage unit, communicating with the control unit and storing at least operational data required for one or more new cooking modes.

14. A microwave oven, comprising:

a control unit having a storage unit therein to store data required to perform one or more cooking modes; and

an external storage unit, separate from the control unit, communicating with the control unit, the external storage unit storing at least operational data required to perform one or more added cooking modes.

15. A microwave oven, comprising:

a control unit having an internal storage unit therein to store data required for one or

more existing cooking modes; and

an external storage unit, separate from the control unit, communicating with and controlled by the control unit, the external storage unit storing at least operational data required for one or more new cooking modes.

16. The microwave oven according to claim 15, wherein:
the data stored in the internal storage unit comprises:
predetermined cooking and operational data of the one or more existing cooking modes; and

the data stored in the external storage unit comprises:
cooking data and the operational data in accordance with the one or more new cooking modes and other cooking data of the one or more existing modes which are not stored, in advance, in the internal storage unit.

17. The microwave oven according to claim 16, further comprising:
a display unit,
wherein the operational data of the new and existing cooking modes comprises:
help messages to be displayed on the display unit.

18. The microwave oven according to claim 17, wherein the operational data of the new and existing cooking modes further comprises:
control algorithms based on the new and existing cooking modes.

19. The microwave oven according to claim 15, further comprising:
a magnetron to generate microwaves to heat food,
wherein the data required for the existing and new cooking modes comprises:
cooking times and output values of the magnetron according to a type and an amount of the food.

20. The microwave oven according to claim 15, further comprising:
a display unit to display cooking information required to cook food and/or cooking status

information generated when the food is cooked,

wherein the data required for existing and new cooking modes stored in the internal and external storage units, respectively, comprises:

the cooking information and/or the cooking status information.

21. The microwave oven according to claim 15, wherein the external storage unit includes a data configuration, comprising:

a first field to store status information of the external storage unit;

a second field to store cooking data of the one or more existing cooking modes;

a third field to store cooking data of the one or more new cooking modes; and

a fourth field to store operational data of the one or more new cooking modes.

22. The microwave oven according to claim 15, wherein the external storage unit comprises:

a non-volatile memory device supporting rewriting of data.

23. The microwave oven according to claim 15, wherein said external storage unit comprises:

an Electrically Erasable Programmable Read Only Memory (EEPROM).

24. A method of controlling a microwave oven, the microwave oven having a control unit with an internal storage unit therein to store data required to perform one or more existing cooking modes, and an external storage unit, separate from the control unit, communicating with the control unit, the external storage unit storing at least operational data required for one or more new cooking modes, comprising:

reading the data required to perform a first cooking mode from the external storage unit when the first cooking mode is one of the new cooking modes and the external storage unit is operational;

reading the data required to perform a second cooking mode from both the internal storage unit and external storage unit when the second cooking mode is one of the existing cooking modes and the external storage unit is operational; and

reading the data required to perform a third cooking mode from the internal storage unit when the third cooking mode is one of the existing cooking modes and the external storage unit is not operational.

25. The microwave oven control method according to claim 24, further comprising:
determining that the external storage unit is operational when both the reading of the data from the external storage unit is possible and the required data is stored in the external storage unit; and

determining that the external storage unit is not operational when the reading of the data from the external storage unit is impossible and/or the required data is not stored in the external storage unit.

26. The microwave oven control method according to claim 25, further comprising:
setting a value of a storage flag to a first level when the reading of the data from the external storage unit is possible; and

setting the value of the storage flag to a second level when the reading of the data from the external storage unit is impossible.

27. A microwave oven, comprising:
a control unit having an internal storage unit to store data required to perform one or more existing cooking modes; and

an external storage unit separate from the control unit communicating with the control unit, the external storage unit storing required data in a data configuration comprising;

a first field to store application state information of the external storage unit,
a second field to store data of the one or more existing cooking modes,
a third field to store cooking data of the one or more new cooking modes, and
a fourth field to store operational data of the one or more new cooking modes.

28. A microwave oven, comprising:
a controller having an internal storage unit to transmit stored predefined data therefrom;
and

an external storage unit separate from the controller communicating with the controller, the external storage unit storing at least additional operational data and transmitting the stored additional data when accessed by the controller such that the internal storage unit of the controller and the external storage unit work as one unit in which the predefined data is stored in the internal storage unit and the at least additional operational data is stored in the external storage unit, and the at least additional operational data is stored after the predefined data in the internal storage unit is stored.